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(56) Documents Cited

CH 000684052 A DE 003631690 A1 US 4325484 A

(58) Field of Search

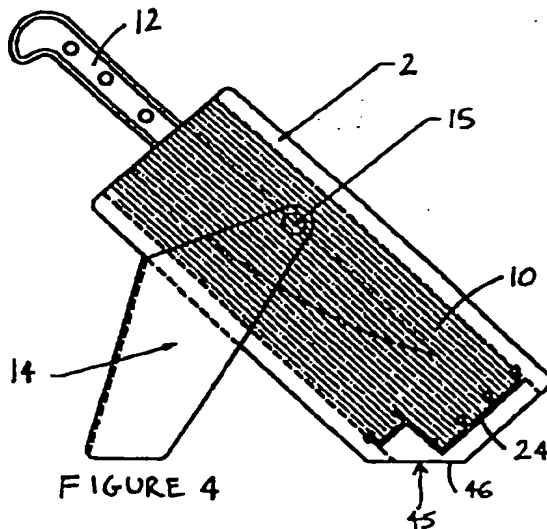
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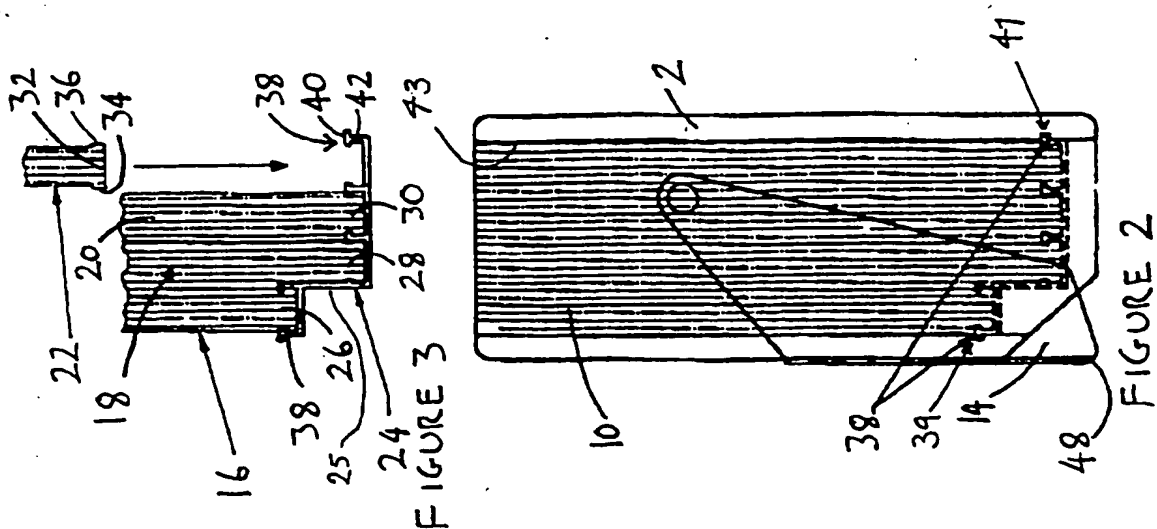
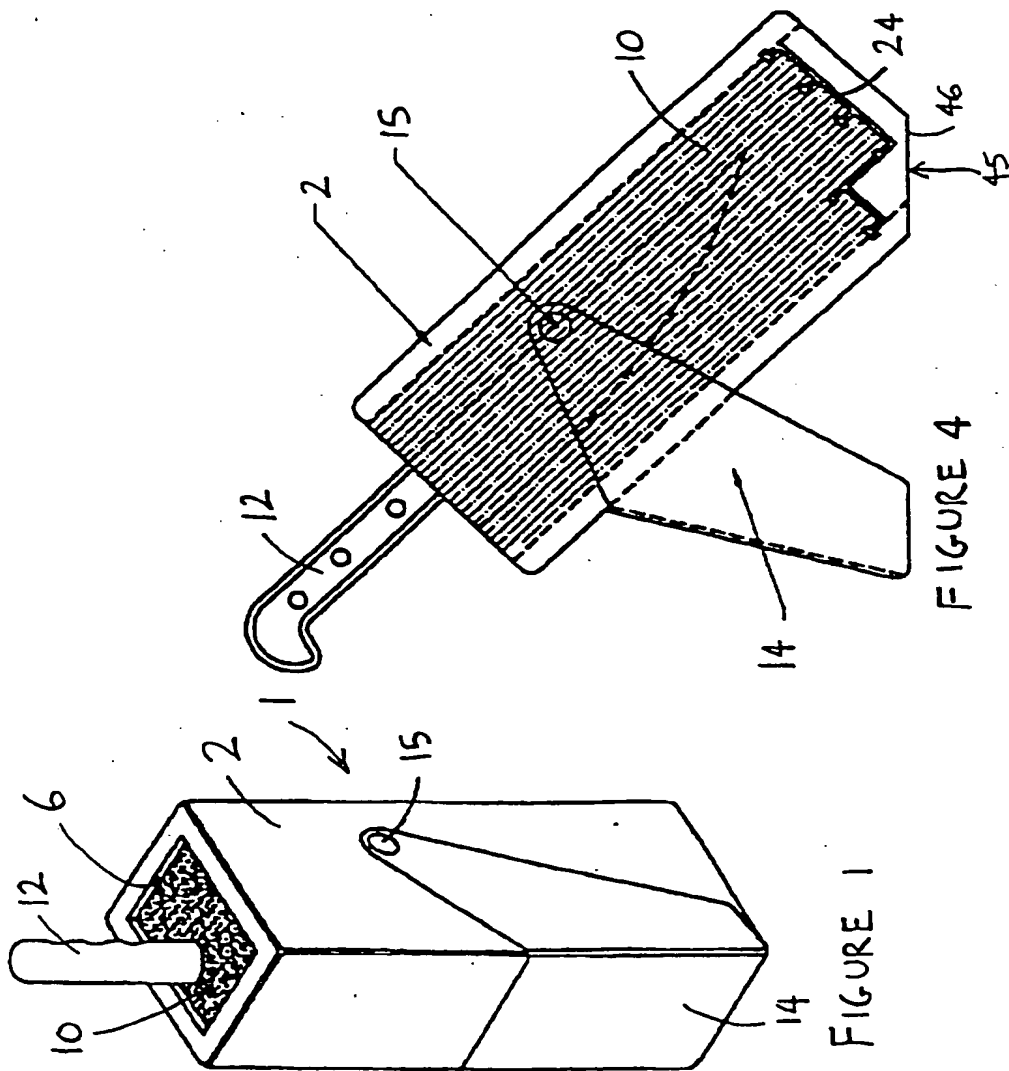
ONLINE: WP1

(54) Storage container for knives

(57) A storage container (1) comprises a housing 2 having an opening (6) for receiving at least one object 12 (e.g. a knife) and containing a unit of flexible filaments 10 for supporting the object(s) 12 during storage. The filament unit 10 is removably fitted into the housing 2, such that it can be drawn out through the housing opening (6) for replacement or cleaning. Attachment means (38,39,41) may exist to attach the filament unit 10 to the housing 2, access for release of the filament unit 10 being possible via an opening 45 at the base of the housing 2. Optionally, the filament unit 10 may be made from a plurality of sub-units (16,18,20,22) releasably connected to a retainer element 24. The filament unit/sub-units 10/(16,18,20,22) may be formed by interconnecting the lower ends of the filaments (26,28,30,32), either by mechanical fusing or gluing. The housing 2 can have a support leg 14 capable of supporting the housing at an angle.



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STORAGE CONTAINER

This invention relates to storage containers, particularly, although not exclusively for the storage of sharp objects such as knives or surgical instruments.

Conventional containers for sharp objects, such as knives, comprise hollow box-like containers provided with a plurality of slots on their top face. Knives are inserted through the slots into the hollow interior of the block. If the knife is placed into the block carelessly, the edge of the knife may be dulled by contact with the edge of the slot in the block. Furthermore, if the knifeblock is made of a soft material such as plastic or wood, the top surface of the block quickly becomes damaged and is thereafter difficult to clean properly.

If a dirty knife is placed into the block, food or other contaminants can fall into the block and no access to the interior is generally provided for cleaning. In situations where hygiene is paramount, such as in a hospital operating theatre, the use of a conventional knifeblock shaped structure for supporting surgical instruments would be entirely inappropriate.

According to the present invention there is provided a storage container comprising a housing having an opening for receiving an object to be stored and containing a unit of flexible filaments for supporting the object during storage, the unit being removably fitted into the housing such that it can be drawn out of the housing through the opening.

Preferably the unit of flexible filaments comprises brush material. The filaments are preferably interconnected at one end to form the unit, the interconnect end of the filament being located towards a base of the container and the free end of the unit being adjacent the opening. Preferably the filaments

are mechanically fused together at the interconnected end.

5 The unit of flexible filaments may be assembled from a plurality of individual sub-units which are releasably connected to a common filament retainer element. The interconnected end of each sub-unit may then be provided with a lateral projection which engages with a corresponding second projection provided on the common filament retainer element. The second
10 projection preferably comprises a spaced apart rib which is T-shaped in cross-section.

 The housing may be provided with a leg which supports the housing at an angle to the vertical or horizontal relative to a support surface. The leg may
15 be pivotably connected to the housing such that it may be swung from a support position in which it partially supports the housing to a folded position in which it lies flat against a side of the housing. Preferably in the folded position, with the longitudinal axis of the
20 housing vertical, the free end of the leg contacts a support surface to stabilise the container.

 For a better understanding of the present invention and to show how it may be carried into effect, reference will now be made by way of example to
25 the accompanying drawings, in which:

 Figure 1 is a perspective view of a knifeblock resting on its base;

 Figure 2 is a cross-sectional view of the knifeblock of Figure 1;

30 Figure 3 shows a unit of flexible filaments removed from the knifeblock, for example, for cleaning; and

 Figure 4 is a cross-sectional view of the knifeblock with its support leg extended.

35 Referring to Figure 1, a storage container comprising a knifeblock 1 comprises a box-shaped

housing 2 having a hollow interior 4 which is accessed by an opening 6 provided in the upper end 8 of the housing 2. The hollow interior 4 of the housing 2 is filled with a unit of flexible filaments 10 in which is supported a knife 12.

A leg 14 is pivotably connected to opposite sides of the housing 2 by means of studs 15 and in Figure 1 is shown folded flat against the housing 2.

Referring to Figures 2 and 3, the unit of flexible filaments 10 comprises four separate sub-units 16, 18, 20, 22 which are fitted to a filament retainer element 24. Each sub-unit 16, 18, 20, 22 comprises a plurality of plastics filaments fused, glued or otherwise interconnected at their lower ends 26, 28, 30, 32. The interconnected ends 26, 28, 30, 32 of each sub-unit are provided with continuous lateral projections 34, 36 which are adapted to engage under corresponding continuous lugs 38 integrally formed on an upper surface of the retainer element 24.

As best shown in Figure 3, the lugs 38 are substantially T-shaped in cross-section and each comprise a substantially horizontally disposed flange 40 integrally formed with a substantially vertical rib 42.

The outermost lugs 38 engage respective recesses 39, 41 formed in the inside surface 43 of the housing 2 and secure the unit of flexible filaments within the knifeblock. A release opening 45 is provided in a lower corner of the housing 2 which provides access to an L-shaped portion 25 of the filament retainer element 24.

In use of the knifeblock, the sub-units 16, 18, 20 and 22 are fitted to the retainer element 24 and the entire unit of flexible filaments 10 is situated within the hollow interior of the housing 2. Knives 12 can then be inserted through the opening 6 between

respective filaments and are then supported by the filaments within the knifeblock. Provided that the blade is inserted within the opening 6, it will be accommodated and supported by the filaments, so precise alignment of the knife blade with the longitudinal axis of the housing 2 is not necessary.

If the unit of flexible filaments 10 becomes damaged, or it is desirable to clean the filaments, the entire unit of flexible filaments 10 is withdrawn from the housing 2. This is achieved by inserting a finger through the release opening 45 and pressing against the longer leg of the L-shaped portion 25 of the filament retainer element 24. This action causes resilient deformation of the filament retainer element 24, such that the left side lug 38 (as views in Figure 2) is disengaged from the recess 39. Continued pressure applied to the filament retainer element 24 and pulling of the free end of the filaments with the other hand disengages the right side lug 38 from the recess 41 and forces the unit of flexible filaments 10 out of the housing 2. The unit of flexible filament 10 may then be washed in one piece.

Alternatively, after the unit of flexible filaments 10 has been withdrawn from the housing, the individual sub-units 16, 18, 20, 22 are pulled from the retainer element 24 and are washed separately. Once the sub-units have dried, they are pushed between respective pairs of lugs 38 on the retainer element 24 such that the projections 34, 36 are gripped by the lugs 38. The entire unit of flexible filaments 10 is then pushed back into the housing 2 until the outermost lugs 38 engages in the recesses 39, 41.

In Figure 4, the knifeblock is illustrated with the leg 14 swung away from the housing 2. In this orientation, the knifeblock rests with its longitudinal axis at an angle of approximately 45° to a support

surface (not shown). In order to improve the stability of the knifeblock, a corner of the base 44 of the knifeblock around the release opening 45 is provided with an angled surface 46 which rests on the support surface (not shown). It is particularly convenient for a user of the knifeblock to pull out and insert knives with the knifeblock in this orientation. However where space on the support surface is limited, the knifeblock may also be rested with its longitudinal axis substantially vertical. In this orientation, the base 44 rests against the support surface (not shown) and the leg 14 is swung against a side of the housing 2, such that a tip 48 of the leg 14 rests on the support surface to provide additional stability to the knifeblock.

The illustrated embodiment shows a knifeblock, but the invention is equally applicable to a storage container for other objects and may in particular be used for the storage and/or temporary support of surgical instruments. It is readily apparent that the entire container may be sterilized by removal of the unit of flexible filaments 10 from the housing 2, the separation of the sub-units 16, 18, 20, 22 from the retainer element 24 and the placing of these elements in an autoclave. The housing itself can then be cleaned or sterilized separately.

The flexible filaments and/or the retainer element 24 are preferably made from fibre or plastics material, although any material is contemplated which would provide the necessary flexibility, integrity, resistance to damage and ability to be cleaned and/or sterilised. Similarly it is contemplated that the housing 2 may be made from plastics, wood, metal, or any other suitable material, the choice of material being dependent on the particular application.

CLAIMS

1. A storage container comprising a housing having an opening for receiving an object to be stored and containing a unit of flexible filaments for supporting the object during storage, the unit being
5 removably fitted into the housing such that it can be drawn out of the housing through the opening.

2. A storage container as claimed in claim 1, in which the filaments are interconnected at one end to form the unit, the interconnected end of the filaments
10 being located towards a base of the housing and the free end of the unit being adjacent the opening.

3. A storage container as claimed in claim 2, in which the filaments are mechanically fused at the
15 interconnected end.

4. A storage container as claimed in claim 2, in which the filaments are glued together at the interconnected end.

5. A storage container as claimed in any one of the preceding claims, in which attachment means are
20 provided to attach the unit of flexible filaments to the housing.

6. A storage container as claimed in claim 5, in which an opening is provided in a base of the housing, the opening providing access to release the attachment
25 means.

7. A storage container as claimed in any one of the preceding claims, in which the unit is assembled from a plurality of individual sub-units, which are releasably connected to a common filament retainer
30 element.

8. A storage container as claimed in claim 7, in which the interconnected end of each sub-unit is provided with lateral projections which engage with
35 corresponding lugs provided on the filter retainer element.

9. A storage container as claimed in claim 8, in which the lugs comprise spaced apart ribs which are T-shaped in cross-section.

5 10. A storage container as claimed in any one of the preceding claims, in which the housing is provided with a leg which supports the housing at an angle to the vertical or horizontal, relative to a support surface.

10 11. A storage container as claimed in claim 10, in which the leg is pivotably connected to the housing, such that it may be swung from a support position in which it extends from the housing to a folded position in which it lies flat against a side of the housing.

15 12. A storage container as claimed in claim 11, in which in the folded position, with the housing upright, the free end of the leg contacts a support surface to stabilize the container.

20 13. A storage container substantially as described herein with reference to and as shown in the accompanying drawings.



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Claims searched: 1-13

Examiner: Matthew Lawson
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Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK Cl (Ed.O): A4A
Int Cl (Ed.6): A47F 5/16, 7/00; A47G 21/14; A47J 47/16; A61B 19/02; B25H 3/00,
3/04; B26B 29/00, 29/02; B65D 85/00
Other: Online: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X,Y	CH 684052 A5 (VICTORINOX AG) column 2 lines 20-27 and figures 1, 2 & 4.	X: 1,2,5, 6,10 Y: 7,11
Y	DE 3631690 A1 (BIZERBA-WERKE) figure 3.	11
Y	US 4325484 (BERRY) column 2 lines 26-34, column 3 lines 17-33 and figures 1 & 7.	7

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.